

**Defense Information Infrastructure (DII)  
Common Operating Environment (COE)**

**Installation Procedures (IP)  
for the  
METCAST Server Segment (MCSRVR)  
(Solaris Version)  
Release 3.2 Series**

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# 1 SCOPE

## 1.1 Identification

These Installation Procedures (IP) describe the installation of the METCAST Server Segment (MCSRVR) of the METCAST data distribution software, Release 3.2 Series (Solaris Version), developed by Fleet Numerical Meteorology and Oceanography Center (FNMOC), Monterey, CA. This software is designed to run under the Defense Information Infrastructure (DII) Common Operating Environment (COE), release 4.4. The software runs under the following hardware and operating systems:

- Sun Enterprise 250 or higher computer running the Sun Solaris operating system, release version 2.8.

This document has been developed in accordance with the *DII COE Developer Documentation Requirements, Version 2.0*.

## 1.2 System Overview

METCAST is a standards-based, request-reply and subscription (channel) system for distributing weather information over the Internet using Hyper-Text Transfer Protocol (HTTP) and Multipurpose Internet Mail Extensions (MIME). The METCAST Server Segment is responsible for processing requests for data from METCAST Clients, interfacing with a database to attempt to satisfy each request, and formatting the retrieved data as specified in the request before returning the data to the client. The METCAST Client comprises a separate segment. METCAST Server also requires the METOC Channels Database (MDCHNL), METOC Observations Database (MDMETC), Grid Field Application Program Interface (API) (MAGRID), Grid Field Database (MDGRID), METOC Imagery API (MAIMG), METOC Imagery Database (MDIMG), Latitude-Longitude-Time (LLT) Observations API (MALLT), the LLT Observations Database (MDLLT) segments as well as the Metcast Client for Servers, which is included (built into) in the MCSRVR segment.

The full METCAST Server installation requires three segments: MDCHNL (the METOC Channels segment), MDMETC (the observation database segment) and MCSRVR (METCAST Server itself). **These segments must be installed in the following order:**

1. MDCHNL
2. MDMETC (**NOTE:** This segment requires version **2.0.0.0 / 9.21** of the Informix On-Line Dynamic Server (INFXSF) segment. If INFXSF 2.0.0.0 / 9.21 is not present on the system, this segment should not be installed. MCSRVR can still be installed, but will not have access to observations.)
3. MCSRVR (must be installed last, but requires MDMETC only if observations are to be processed).

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## 2 REFERENCED DOCUMENTS

### 2.1 Government Documents

DDR-2 23 January 1998	<i>Defense Information Infrastructure (DII) Common Operating Environment (COE) Developer Documentation Requirements, Version 2.0, Defense Information Systems Agency, Joint Operability and Engineering Organization</i>
Unnumbered 18 June 1998	<i>Software Requirements Specification for METCAST, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-155), San Diego, CA</i>
fnmoc_METCAST_IP_15Series 04 June 2001	<i>Installation Procedures (IP) for the METCAST Client Segment, release 1.5 Series</i>
fnmoc_METCAST_UM_1500 04 June 2001	<i>User Manual (UM) for the METCAST Client Segment, release 1.5</i>
fnmoc_MDMETC_IP_12Series_Solaris 10 August 2001	<i>Installation Procedures (IP) for the METOC Observations Database (MDMETC) Segment, Release 1.2 for Solaris</i>
fnmoc_MDCHNL_IP_12Series_Solaris 10 August 2001	<i>Installation Procedures (IP) for the METOC Channels Database (MDCHNL) Segment, Release 1.2 for Solaris</i>
CM-30603 04 February 2001	<i>DII COE Kernel v4.2.0.0 Installation Guide for Solaris 2.7/2.8</i>
CM-41835 2 April 1997	<i>Errata Sheets to the Installation Procedures (IP) for Kernel version 4.2.0.0 (Solaris 8)</i>
CM-43184 22 February 2001	<i>Installation Procedures and Software Version Description for DII COE 4.2.0.0 Kernel Patch 4 version 4.2.0.0P4 for Solaris 2.8</i>
ipd4400magridipTES-10 29 January 1999	<i>Installation Procedures (IP) for the Grid Field Application Program Interface (API) Segment (MAGRID) of the Tactical Environmental Support System (Next Century) [TESS(NC)] Meteorological and Oceanographic (METOC) Database</i>

ipd4400mdgridipTES-10 29 January 1999	<i>Installation Procedures (IP) for the Grid Field Database Segment (MDGRID) of the Tactical Environmental Support System (Next Century) [TESS(NC)] Meteorological and Oceanographic (METOC) Database</i>
ipd4200malltipTES-10 9 October 1998	<i>Installation Procedures (IP) for the Latitude-Longitude-Time (LLT) Observations Application Program Interface (API) Segment (MALLT) of the Tactical Environmental Support System (Next Century) [TESS(NC)] Meteorological and Oceanographic (METOC) Database</i>
ipd4300mdlltipTES-10 9 October 1999	<i>Installation Procedures (IP) for the Latitude-Longitude-Time (LLT) Observations Database Segment (MDLLT) of the Tactical Environmental Support System (Next Century) [TESS(NC)] Meteorological and Oceanographic (METOC) Database</i>
ipd4200maimgiptes-10 9 October 1998	<i>Installation Procedures (IP) for the METOC Imagery Application Program Interface (API) Segment (MAIMG) of the Tactical Environmental Support System (Next Century) [TESS(NC)] Meteorological and Oceanographic (METOC) Database</i>
ipd4400mdimgipTES-10 21 January 1999	<i>Installation Procedures (IP) for the METOC Imagery Database Segment (MDIMG) of the Tactical Environmental Support System (Next Century) [TESS(NC)] Meteorological and Oceanographic (METOC) Database</i>

## 2.2 Non-Government Documents

None.



## **3 SYSTEM ENVIRONMENT**

### **3.1 System Requirements**

#### **3.1.1 Hardware Requirements**

The METCAST Server segment is hosted on the following hardware:

- Sun Enterprise 250 or higher

The following configurations are recommended:

- Sun Enterprise 450: RAM: 512 MB  
Disk Space: 200 GB

#### **3.1.2 Operating System Requirements**

- Sun: Solaris 2.8

#### **3.1.3 Kernel Requirements**

- Solaris 2.8: Kernel 4.2.0.0 with patch P4

## **3.2 System and Site Preparations**

### **3.2.1 System Configuration**

The following software must be properly installed prior to loading the MCSRVr segment:

- Appropriate operating system (as described above)
- Appropriate DII COE Kernel (as described above)
- DII COE Informix Server Foundation segment (INFXSF), version 2.0.0.0/9.21.
- DII COE DBAdm Account Group segment version 3.0.0.0
- DII COE DBAdmR segment version 3.0.0.0
- METOC Channels Database (MDCHNL) Segment (see Installation Procedures referenced in Section 2.1)
- METOC Observations Database (MDMETC) Segment (see Installation Procedures referenced in Section 2.1)

### **3.2.2 Operating System Preparation**

Information needed to prepare the operating system is found in these documents:

Solaris 2.8:

- DII COE Kernel v4.2.0.0 Installation Guide for Solaris 2.7/2.8
- DII COE 4.2.0.0 Kernel Patch 4 version 4.2.0.0P4 Installation Procedures and Software Version Description for Solaris 2.7/2.8
- DII COE Errata Sheets to Installation Procedures (IP) for Kernel version 4.2.0.0 (Solaris 2.8)

### **3.2.3 Tape/Disk Preparation**

The METCAST Server segment software is delivered on CD-ROM for the Sun hardware environment.

### **3.2.4 Operator Qualifications**

The installation process requires that the operator be able to log in to the system as root, as System Administrator (sysadmin), and as Database Administrator (dbadmin).

## 4 INSTALLATION INSTRUCTIONS

Installation on Solaris systems is performed using the DII COE Segment Installer.

### 4.1 Media Booting Procedures

To prepare media (CD-ROM, DAT tape etc) for installation:

1. Insert the media into the appropriate drive.
2. Log in as sysadmin.
3. Configure the web server before starting the installation:

- a. Open an xterm Window (see Section 5.2).
- b. At the command prompt, type

```
su root <Enter>
```

where <Enter> represents the Enter or Return key. Then enter the root password at the prompt, and press the Enter key again.

- c. Edit the Web Server configuration file to include the MCSRVR segment cgi-bin directory. The server configuration file is usually named httpd.conf or httpd.conf. Open this file and add the following directory entry.

```
<Directory /h/ MCSRVR/data/mcsrvr/cgi-bin>
AllowOverride Limit AuthConfig
Options FollowSynLinks
</Directory>
```

If the MCSRVER segment was not installed on the h: path, ensure that the appropriate path letter is used in place of the “h”, in the first line above.

- d. After modifying the Web Server configuration file, the Web server must be power cycled to activate the changes. To do so, open the **Network** menu; select **Servers**, then **APACHE Web Server** (or other Web server, if a different Web Server is used), then **Shutdown Web Server**. Wait 30 seconds, then reopen the **Network** menu, select **Servers**, then **APACHE Web Server** (or other Web server, as appropriate), and select **Start Web Server**.
  - e. Close the xterm window.
4. Open the DII COE **Segment Installer** by right clicking on the Screen background and selecting **Applications** from the popup menu. Select **Applications Manager** from the next

pull down menu, and then double click on the **DII APPS** folder. Select the **SysAdm** folder by double clicking on it, and then double click on the **Segment Installer** folder. The **Segment Installer** Window will then appear.

5. Click on the **Select Source** button, and choose the appropriate **host** and **device** from the dialog box.
6. Select the **METOC Server (MCSRVR) segment** from the **Files** window, and click on the **OK** button.
7. This will return you to the Installer Window. Select **Read Contents** and verify that the **MCSRVR** segment is present in the **Software to Install** window. Proceed to Section 4.2.

## 4.2 Installation Procedures

(Note: Prior to segment installation, ensure that no existing METCAST Server segment (MCSRVR) is installed on the target platform. If a **METCAST Server** segment is listed in the **Currently Installed Segments** section of the window, select it, then select the **Deinstall** button and follow the instructions on the screen to remove the existing METCAST Server segment.)

To install the METCAST Server software:

1. First ensure that the operating system (OS) and Kernel, with all patches, are installed. Instructions for installing the OS, Kernel, and patches are contained in the documentation cited in Section 3.2.2. Also ensure that the MDCHNL and METOC (if necessary) segments have been installed.
2. Proceed with the Installation by highlighting the **METOC Server (MCSRVR) segment** in the **Software to Install** window, and then read the **RELEASE NOTES** prior to clicking on the **Install** button.
3. An INSTALL STATUS dialog box will appear, which will display the software loading status in a % format.
4. Answer n <Enter> to all prompts in the Update Security Database window, which will appear toward the end of the installation.
5. Once the installation is complete, the Segment Installer window will appear. The **METOC Server (MCSRVR) segment** will be displayed in the **Currently Installed Segments** section of the window.
6. After exiting the installer, proceed to the instructions in Section 4.5 for initialization of the software.

## 4.3 Installation of Upgrades

Installation of upgrades will generally follow the same procedures listed above.

## 4.4 Installation Verification

All successfully installed segments are listed in the **Currently Installed Segments** portion of the DII COE **Segment Installer** window.

## 4.5 Initializing the Software

After installing the MCSRVVR segment, the following steps must be performed to start the METCAST Server:

1. Reboot the computer. To do this, click on **Hardware** on the menu bar, then select **Reboot System** from the menu that drops down. If a confirmation dialog appears, confirm that you want to reboot.
2. Log in as dbadmin.
3. Ensure that the Informix server is running. Click on **Database Control** on the menu bar, and select **Server Control** from the drop-down menu. If the dialog that appears says that Informix server is DOWN, click on the Start Server button. This should start the Informix server, and the dialog should say the server is UP. When the server is up, close the dialog.
4. Log out and log in as **ingest**.
5. Open an xterm window (See Section 5.2)
6. Type **ls** at the xterm window command prompt to display the associated MCSRVVR program files.
7. Four of the displayed programs must be started manually; these are listed below. Type the following commands in sequence to start the programs. For an initial installation of the METCAST Server Segment, it is necessary to start all four programs. For subsequent Server startup (after Data Areas and Lists have been defined and scheduled as described in step 8 below), only the first 2 programs are required to start the download of data for the scheduled Areas and Lists.
  - a. Type **./MCloadService** to start the Service background processes.
  - b. Type **./MCInit** to initialize the Service background processes.
  - c. Type **./MCClient** to start the Metcast Client for Servers GUI, which is used to define Areas and Lists, select products for those Areas/Lists, and to configure the data retrieval parameters.
  - d. Type **./MCMonitor** to start the Metcast Retriever Monitor, which is used to monitor data retrieval status.

Note: Users wishing to automate the starting of the MCSRVr Decoders in a DII COE environment should read the Readme file (Scripts/README FILE)

8. Use the Metcast Client for Servers GUI, which was started in step c above, to configure the data retrievals that will feed the MCSRVr Segment. The configuration of data retrievals entails defining Areas (and Lists) of interest, selecting products for those Areas and Lists, and the set up of retrieval preferences (when and how often to retrieve data) for each product type.

For detailed instructions on setting up data retrievals via the Metcast Client for Servers GUI, refer to the *Metcast Client Users Manual (fnmoc\_METCAST\_UM\_15)*; refer specifically to the Sections listed below:

**IMPORTANT NOTE:** Right clicking in rapid succession within Metcast Client on a Sun Solaris Server will cause a system crash (An example of this would be to right click on a defined area to display the popup menu and then selecting Schedule. If the user quickly right clicks on another defined area before the first area is scheduled, the system will crash). This is a known feature of the XVT/XWindows in the Sun Solaris operating system. To help ensure uninterrupted system operation, users should not "click ahead" of the software. It is recommended that users wait for a software function or operation to complete before initiating the next mouse click.

The screen shots displayed in the Metcast Client Users Manual were captured on a Windows NT system and therefore look slightly different than those on the Solaris Operating System. The functionality, however, remains the same.

**Section 5 – Using Metcast Client,** Provides instructions on how to set up the various areas and lists, products and retrieval parameters.

**Section 5.1 – The Basics,** describes how to set up the Metcast Clients Requestor to schedule data retrievals. Note that Step 7 – Displaying Products, does not apply to Server applications.

**Section 5.2 – Server Setup (The Options Menu),** describes the process of setting up the connection to the data server (source) from which raw data will be retrieved and then fed to the MCSRVr Segment for decoding.

**Section 5.3 – Defining, Selecting, and Managing Areas,** describes how to set up and manage areas of interest for which data will be retrieved. The *Remote Link* Area selection is a Windows NT function and as such does not apply to Server applications.

**Section 5.4 – Selecting Products for Retrieval,** describes how to select products for each of the defined areas.

**Section 5.5 – Setting Up Requests,** describes how to configure the retrieval (request) options for the defined areas and products.

**Section 5.6 – Setting up Lists**, describes how to select non-geographical text data such as surface observations and bulletins for download. The *Remote List* selection is a Windows NT function and as such does not apply to Server applications.

**Section 5.7 – Scheduling an Area or List**, describes how to activate (schedule) the retrieval of products selected in the defined Areas and Lists.

**Section 5.8 – Displaying the Status of a Retrieval**, describes how to use the Metcast Retriever Monitor (started in step c above), and the Area Status List to view and monitor the status of the scheduled retrievals.

Note: After using the Metcast Client GUI and the Metcast Retrieval Monitor GUI, you may close the GUI's, and the programs will continue to operate in the background.

At this point, after setting up and Scheduling the defined Areas and/or Lists, the requested data should be actively downloading via the Metcast Client Requestor into the DPSR directory. The remaining steps below will start the MCSRVr decoders and begin the ingest process.

9. Log out and then log in as Web.
10. Open an xterm Window.
11. Type: **cd \$Seg/Scripts**
12. Type: **./task.ksh** to display a list of options. Select **Start All Decoders**. The MCSRVr decoders will then search the DPSR directory for the presence of downloaded data, and if found, will decode that data, write status to the appropriate log file and then pass the decoded data to the appropriate location within the database.
13. Monitor the **decoder** and **grid** logs by choosing the appropriate selection from the options list (**Examine decoder log**, or **Examine grid log**). When the decoders are running, data will scroll quickly on the screen until all of the downloaded data has been decoded. When the decoders have completed processing all of the available data, the data stream will pause and the following statement will often appear: “ Load complete at <current date and time>”. Type **Ctl-C** at any time to exit the log files.
14. As soon as the decoder and grid logs have paused, you may publish a Dynamic Product List (DPL) by selecting **Publish Dynamic Product List** from the options list described in step 12.
15. User web is responsible for various background tasks using the system scheduler, **cron**. The tasks are compiled into the file scripts, **crontab.web** and are initialized by typing the following command: **\$ crontab crontab.web**. One of the automatic background tasks initialized by this command is the periodic publishing of the Dynamic Product List.
16. Log out as user Web.

## **4.6 List of Changes and Enhancements**

The h/mcsrvr/grids/bin/gridxml program was modified to support a sub-center id parameter. This is used primarily in the DAMPS installation.

## **4.7 Important Considerations**

This section is tailored out.



## 5 NOTES

### 5.1 Glossary of Acronyms

COE	Common Operating Environment
DII	Defense Information Infrastructure
FNMOCC	Fleet Numerical Meteorology and Oceanography Center
GUI	Graphical User Interface
HTTP	Hyper-Text Transfer Protocol
INFXSF	Informix Foundation Server Segment
IP	Installation Procedure
IP	Internet Protocol
MCSRVR	METCAST Server Segment
MDCHNL	METOC Channels Segment
MDMETC	METOC Observations Database Segment
METCAST	METOC Broadcast
METOC	Meteorological and Oceanographic
MIME	Multipurpose Internet Mail Extensions
PC	Personal Computer
SRS	Software Requirements Specification
SVD	Software Version Description
T&E	Test and Evaluation
TCP	Transport Control Protocol
UM	User Manual

## 5.2 Starting an xterm

Several parts of the installation procedures require the operator to open an xterm window and enter commands. To open an xterm:

1. Log on using the appropriate login (sysadmin, ingest, etc)
2. Go to the tool bar at the bottom of the screen and click on the up arrow associated with the “cpu-disk” menu button. This will open a pop up menu. Select “This Host” from the menu and an xterm window will appear.